IN THE CLAIMS

Please amend claims 1, 6, 7, 16 and 24 and cancel claims 11, 15 and 21-23 as shown below.

1. (Currently Amended): A method for guiding an end effector to a target position within a person, the end effector being spatially associated with a robot coordinate system, the method comprising:

generating a plurality of digital images of an interior anatomy of the person when the person has a predetermined respiratory state;

indicating a skin entry position on at least one of the digital images;

indicating the target position on at least one of the digital images;

determining a first trajectory path based on the skin entry position and the target position in a digital image coordinate system associated with the plurality of digital images;

determining a second trajectory path in the robot coordinate system based on the first trajectory path and at least one transformation matrix for transforming coordinates in the digital image coordinate system to coordinates in the robot coordinate system;

generating a first signal that is indicative of respiratory states of the person over time; ~~and~~

determining whether an amplitude of the first signal is within a predetermined amplitude range, the predetermined amplitude range having an upper threshold value and a lower threshold value; and

moving the end effector along the second trajectory path toward the target position when ~~an~~ the amplitude of the first signal is within ~~a~~ the predetermined amplitude range, ~~the predetermined amplitude range having an upper threshold value and a lower threshold value,~~ and stopping movement of the end effector when the amplitude of the first signal is not within the predetermined amplitude range.

2. (Original): The method of claim 1, wherein generating the plurality of digital images comprises:

moving the person within a scanning device along an axis; and,

generating the plurality of cross-sectional digital images during the movement wherein each cross-sectional image is generated at a distinct axial position.

3. (Cancelled).

4. (Original): The method of claim 1, wherein the end effector is moved at a predetermined speed.

5. (Original): The method of claim 1, wherein the plurality of digital images comprises a plurality of computerized tomography images.

6. (Currently Amended): A system for guiding an end effector to a target position within a person, the end effector being spatially associated with a robot coordinate system, the system comprising:

~~an infrared~~ a respiratory monitoring device ~~for~~ configured to generate a first signal that is indicative of respiratory states of the person over time ~~monitoring a respiratory state of the person to obtain a monitored respiratory state~~;

a scanning device configured to scan an interior anatomy of the person ~~when the person has a predetermined respiratory state~~ to generate scanning data;

a first computer generating a plurality of digital images based on the scanning data, the plurality of digital images being spatially associated with a digital image coordinate system;

a second computer configured to display the plurality of digital images, the second computer further configured to allow an operator to indicate a skin entry position on at least one of the digital images;

a third computer operably communicating with the respiratory monitoring device and the second computer;

the second computer further configured to allow the operator to indicate the target position on at least one of the digital images, the second computer further configured to determine a first trajectory path based on the skin entry position and the target position in the digital image coordinate system;

the second computer further configured to determine a first transformation matrix for transforming coordinates in the digital image coordinate system to coordinates in an end-effector coordinate system;

the second computer further configured to determine a second transformation matrix for transforming coordinates in the end-effector coordinate system to coordinates in the robot coordinate system;

the second computer further configured to determine a third transformation matrix for transforming coordinates in the digital image coordinate system to coordinates in an the robot coordinate system, based on the first transformation matrix and the second transformation matrix;

the second computer further configured to determine a second trajectory path in the robot coordinate system based on the first trajectory path and the third transformation matrix;

the third computer configured to determine whether an amplitude of the first signal is within a predetermined amplitude range, the predetermined amplitude range having an upper threshold value and a lower threshold value; and

an end effector insertion device having the end effector adapted to be inserted into the person, the second computer inducing the end effector insertion device to move the end effector along the second trajectory path toward the target position when the amplitude of the first signal is within the predetermined amplitude range, and stopping movement of the end effector when the amplitude of the first signal is not within the predetermined amplitude range ~~a difference between the monitored respiratory state and the predetermined respiratory state is less than or equal to a threshold value and to stop movement of the end effector when the difference between the monitored respiratory state and the predetermined respiratory state is not less than or equal to the threshold value~~.

7. (Currently Amended): The system of claim 6, wherein the ~~infrared~~ respiratory monitoring device is configured to detect ~~detects~~ a position of a chest of the person and to generate the first signal in response to changes in the position of the chest of the person over time which is indicative of the respiratory states of the person over time ~~utilizing infrared light, to monitor the respiratory state of the person~~.

8. (Original): The system of claim 6, wherein the scanning device comprises a computerized tomography scanner and the plurality of digital images comprise a plurality of computerized tomography images.

9. (Original): The system of claim 6, wherein the end effector insertion device comprises an end effector driver configured to linearly move the end effector.

10. (Original): The system of claim 6, further comprising a positioning device operably coupled to the end effector insertion device for disposing the end effector insertion device at a predetermined position.

11. (Cancelled).

12. (Original): The system of claim 6, wherein the second computer is further configured to move the person within the scanning device for generating the plurality of digital images during the movement wherein each digital image is generated at a distinct axial position of the person.

13. (Cancelled).

14. (Previously Presented): The system of claim 6, wherein the second computer induces the end effector insertion device to move the end effector along the second trajectory path toward the target position at a predetermined speed.

15. (Cancelled).

16. (Currently Amended): An article of manufacture, comprising:

a computer storage medium having a computer program encoded therein for guiding an end effector to a target position within a person, the end effector being spatially associated with a robot coordinate system, the computer storage medium including:

code for displaying and generating a plurality of digital images of an interior anatomy of the person when the person has a predetermined respiratory state, the plurality of digital images being spatially associated with a digital image coordinate system;

code for indicating a skin entry position on at least one of the digital images;

code for indicating the target position on at least one of the digital images;

code for determining a first trajectory path based on the skin entry position and the target position in the digital image coordinate system;

code for determining a second trajectory path in the robot coordinate system based on the first trajectory path and at least one transformation matrix for transforming coordinates in the digital image coordinate system to coordinates in the robot coordinate system;

code for receiving a first signal that is indicative of respiratory states of the person over time; ~~and~~

code for determining whether an amplitude of the first signal is within a predetermined amplitude range, the predetermined amplitude range having an upper threshold value and a lower threshold value;

code for moving the end effector along the second trajectory path toward the target position when ~~an~~ the amplitude of the first signal is within ~~a~~ the predetermined amplitude range~~, the predetermined amplitude range having an upper threshold value and a lower threshold value~~; and

code for stopping movement of the end effector when the amplitude of the first signal is not within the predetermined amplitude range.

17. (Original): The article of manufacture of claim 16, wherein the code for displaying the plurality of digital images comprises:

code for scanning a predetermined region of the person along an axis; and,

code for generating the plurality of digital images during the movement wherein each digital image is generated at a distinct axial position.

18. (Cancelled).

19. (Original): The article of manufacture of claim 16, wherein the computer storage medium further includes code for moving the end effector at a predetermined speed into the person.

20. (Original): The article of manufacture of claim 16, wherein the plurality of digital images comprises a plurality of computerized tomography images.

21. (Cancelled).

22. (Cancelled).

23. (Cancelled).

24. (Currently Amended): A method for guiding an end effector to a target position within a person, the end effector being spatially associated with a robot coordinate system, the method comprising:

generating a plurality of digital images of an interior anatomy of the person when the person has a predetermined respiratory state;

determining a first trajectory path based on a skin entry position and a target position in a digital image coordinate system associated with the plurality of digital images;

determining a second trajectory path in the robot coordinate system based on the first trajectory path and at least one transformation matrix for transforming coordinates in the digital image coordinate system to coordinates in the robot coordinate system;

generating a first signal that is indicative of respiratory states of the person over time; ~~and~~

determining whether an amplitude of the first signal is within a predetermined amplitude range, the predetermined amplitude range having an upper threshold value and a lower threshold value; and

moving the end effector along the second trajectory path toward the target position when ~~an~~ the amplitude of the first signal is within ~~a~~ the predetermined amplitude range, ~~the predetermined amplitude range having an upper threshold value and a lower threshold value,~~ and stopping movement of the end effector when the amplitude of the first signal is not within the predetermined amplitude range.